ORNL Neutron Sciences Logbook

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NEUTRON SCIENCES

ABSTRACT

The electronic logbook developed for the Spallation Neutron Source Research Accelerator Division at Oak Ridge National Lab (ORNL) is now in its fifth major release. This latest major release introduces a powerful, redesigned web interface that is easier to use, more space efficient and looks great both on desktop computers and handheld devices. The logbook has served as a means of chronologically recording and communicating accelerator activities and experiences. A recent minor release extends the logbook to serve the ORNL Neutron Sciences directorate with a custom interface for beam line instrumentation activities. The logbook has been fully database backed since its inception which allows for easy integration with other applications.

Overview

The ORNL Spallation Neutron Source (SNS) Logbook [1] is the official log of operations activities in the Research Accelerator Division (RAD) as well as physics machine studies. The logbook has a web browser user interface for both composing and browsing entries.

Logbook development began in 2002 to support what would be the upcoming accelerator commissioning. Logbooks in use at other laboratories had been considered, but it was decided that a custom logbook would provide the best integration with other services provided through our global database [2]. From its inception, the logbook was designed to be 100% database backed (a first among logbooks under consideration).

The currently deployed version is now 5.5.0 with new support for the ORNL Neutron Scattering Sciences Division (NSSD). Both the RAD and NSSD logbooks are built off a common source code base with customization as necessary. The ORNL LSS office has been using a version developed independently off of a 4.x branch, and more recently the Facility for Rare Isotope Beams (FRIB) at Michigan State University has decided to begin development of their logbook from our current version.

Features

The Logbook has the following features:

★ Support for HTML 5 standards compliant browsers
★ Online Help
★ Streamlined news reader style browsing
★ Symmetric client side filtering and server side searching of entries
★ Printer friendly views
★ Entry bookmarks
★ Unlimited levels of nested threads
★ Group email notification
★ Daily Orders and Required Reading
★ Entries can have multiple images and attachments
★ Entry types and priorities
★ Entry may be posted across multiple logbooks, affected groups and impacted areas
★ Work Order references
★ View personnel on shift during time an entry was posted
★ Standard username and password integration

Browsing Entries
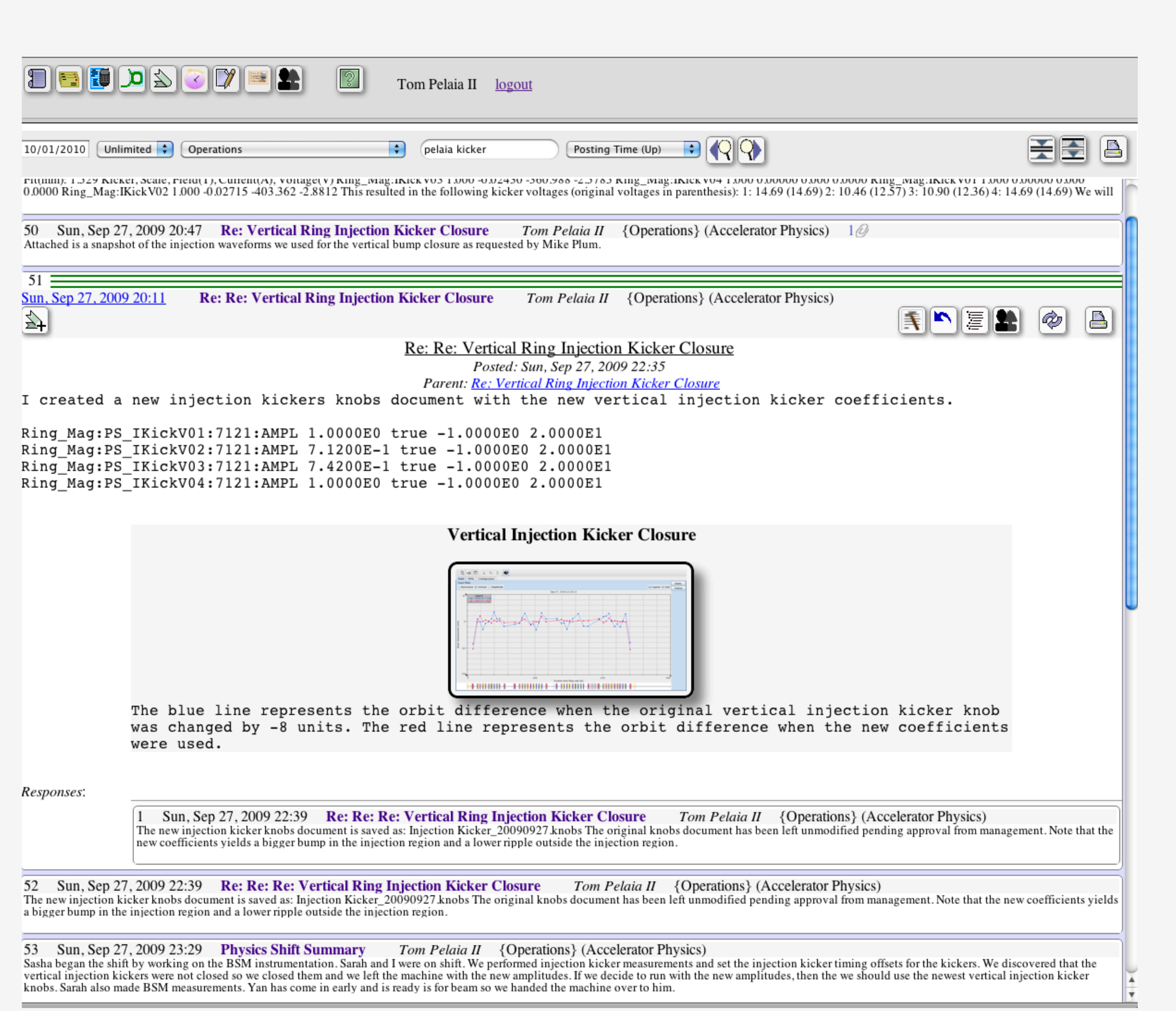
Best Practices

We learned the following lessons:

➡ Reliability and uptime are essential to user acceptance
➡ Maintain business rules and all entry data in an enterprise database
➡ Keep the interface simple and clean
➡ The interface should make efficient use of real estate with support for both large screens and mobile devices
➡ Provide training to users when introducing major changes
➡ Write code to the common subset of modern browser standards
➡ Leverage HTML 5 for an optimal user experience
➡ Formatting is best left to Cascading Style Sheets (CSS)
➡ It's hard to support old browser versions (users should upgrade)
➡ Challenging to integrate with proprietary systems
➡ Open testing to users of different browsers
➡ Manage requirements
➡ Client side web diagnostics are critical (e.g. Safari's Web Inspector)

References

[1] T. Pelaia II, et. all, "SNS LOGBOOK," Proceedings of ICALEPCS07, Knoxville, Tennessee, USA, <http://accelconf.web.cern.ch/AccelConf/ica07/PAPERS/RPPB04.PDF>

[2] J. Galambos, et. al., "SNS GLOBAL DATABASE USE IN APPLICATION PROGRAMMING," Proceedings of the 2003 Particle Accelerator Conference, Portland, Oregon, USA, <http://accelconf.web.cern.ch/Accelconf/p03/PAPERS/WPPE016.PDF>

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